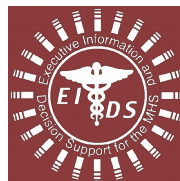




TRICARE Data Quality Training Course

February 13, 2007

Mr. Duane Rutan
TRICARE Management Activity (TMA)
Executive Information Decision Support (EIDS)
United States Department of Defense Military Health System





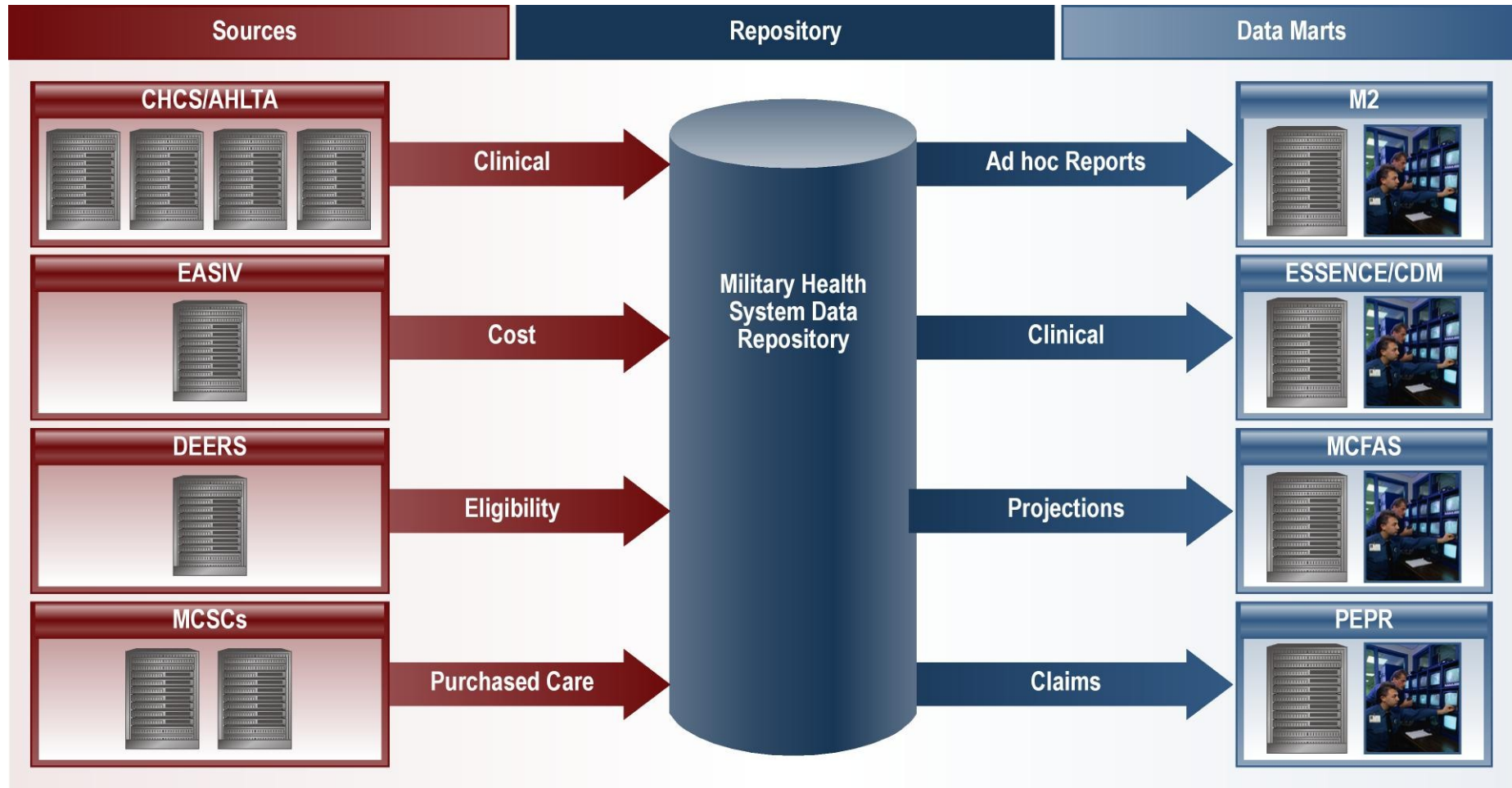
Objectives

- Why data quality matters
- How our tools affect data quality
- How you can use this information in your data quality program

EIDS

- MHS centralized data store
- Receive, analyze, process, and store 100+ terabytes of data
- Thousands of users worldwide

EIDS Architecture



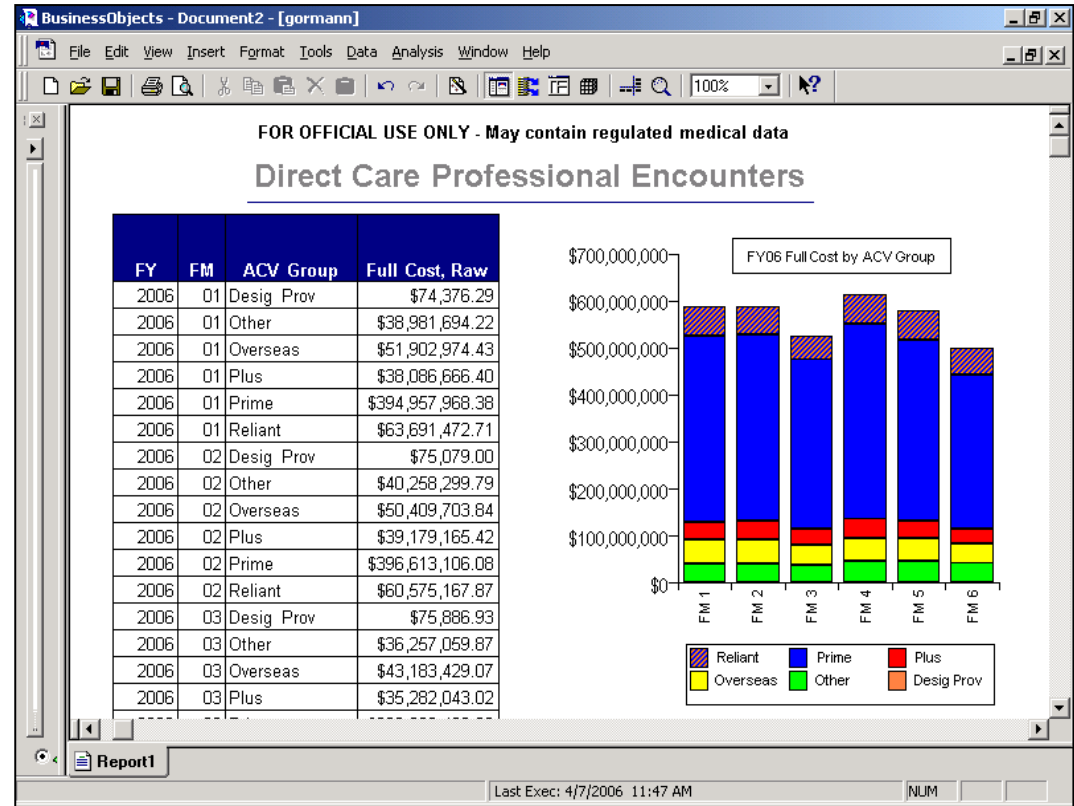
MDR (MHS Data Repository)

- Centralized data capture and validation of MHS data worldwide
- More than 5 billion records on-line with 10+ years of data
- Provides repository for other systems/applications to receive extracts
- Typical users: small cadre of high-level data analysts



M2 (MHS Management Analysis & Reporting Tool)

- Powerful ad hoc query tool for detailed trend analysis such as patient and provider profiling
- Typical users: Data analysts skilled in Business Objects software



EIDS Data Quality Requirements



- Capture and catalog data files
- Assess and monitor data completeness
- Perform data quality feed node assessments
- Develop data quality software that:
 - Performs automatic data quality checks
 - Implements data quality assessments
 - Provides metrics and manages perspective of the files' data quality

"A thousand miles can lead so many ways...Just to know who is driving... what a help it would be"

The Moody Blues

EIDS Data Quality Metrics



- Integrity: is it secure?
- Relevancy: is it appropriate?
 - Reliability: is it rationally correlated?
 - Validity: is it sound?
- Consistency: is it free from contradiction?
 - Uniqueness: is it free from duplication?
- Timeliness: is it available when needed?
- Completeness: is it whole?
- Accuracy: is it free from error?

MDR and Data Quality

	Processors	Processing utilities	Access control script	Metadata catalog
Integrity				
Relevant				✓
Reliable	✓	✓		
Valid			✓	
Consistent	✓			
Unique	✓			✓
Timely		✓		✓
Complete	✓			
Accurate	✓			✓

Data Quality Tools



- Real-time key data quality/completeness DB2 database for:
 - ✓SIDR SADR HL7 PDTs Appointment Ancillary
- Database updated daily and scripted to provide “event-driven” alerts via e-mail for critical data quality areas
- DMIS IDs “real time” and “snapshot” views of key data completeness measures
- Web and front-end access for standard reports
- Multilayer data comparisons from raw to processed data for procedure-based

Data Tracker

- Essentially a “Mini MDR/M2” where data are processed in real time
 - Data Tracker tools and reports
- SIDR and SADR, HL7, Appointment, Ancillary, TED Inst/Non-Inst primary reports provide:

- File based accounting (e.g. Gap reports)
- Treatment based accounting (e.g. reports based on care date)
- Timeliness reporting (e.g. lag from care rendered date to ingest)
- Other statistical reports including benchmarking against WWR
- Statistical Process Control Alerting for SADR anomalies

Other Data Tracker tools and reports

- Monthly “Hutchinson-like” report (SIDR and SADR vs WWR Benchmarking)
- Ad Hoc Queries to the Data Tracker
- GCPR & PDTS Gap Reports – Receipt Reports – Pull Reports

Current Data Tracker reports on the EIDS Web site

- Daily SADR by HOST DMIS (The *“What Was Received Yesterday”* Report)
- Daily SADR by Treatment ID – 90 Day (The daily *“90 Day Roller”* Report)
- Monthly SIDR by Treatment DMIS

EIDS Web Portal Resource

The screenshot shows the EIDS Web Portal in Microsoft Internet Explorer. The browser window title is "EI/DS - Microsoft Internet Explorer". The address bar shows "https://eids.ha.osd.mil/". The page header includes "EXECUTIVE INFORMATION AND DECISION SUPPORT" and "Welcome to EIDS". A navigation menu at the top includes links like Home, Register, Login, About, Help Desk, Products, Related Sites, Privacy Policy, Feedback, and Site Map. The main content area is divided into sections: "Product Access" (with a link to "EI/DS Access"), "EIDS Captured Data" (a list of data types), "EI/DS: Did you know...?" (a paragraph about PEPR), and "Keep up-to-date on EI/DS!" (a newsletter sign-up form). A large orange arrow points from a text box to the "EIDS Captured Data" sidebar.

Product Access
For Product access, please contact [EI/DS Access](#)

EIDS Captured Data

- Customer Satisfaction Survey Data
- DEERS Point-in-Time Extract (PITE) - Eligible Beneficiaries
- Expense Assignment System IV (EAS IV)
- Health Care Provider Record (HCPR)
- Health Care Service Record (HCSR)
- Institutional Claims
- Health Care Service Record (HCSR)
- Professional Claims
- Health Level 7 (HL-7)
- Non-Availability Statements (NAS)
- Pharmacy Data
- Transaction Service (POTS)
- Standard Ambulatory Data Record (SADR)
- Standard Inpatient Data Record (SIDR)
- TRICARE Encounter Data (TED) Claims
- TRICARE Enrollment File
- Worldwide Workload Report

EI/DS: Did you know...?
PEPR is a suite of three applications that will replace the legacy TRICARE Management Activity Reporting Tools (TMA-RT) applications. These web-based tools will allow analysis of TRICARE purchased care claims data received from Managed Care Support Contractors (MCSC) and Next Generation of Contracts.

Keep up-to-date on EI/DS!
Enter your email address to subscribe to the eXpresso newsletter

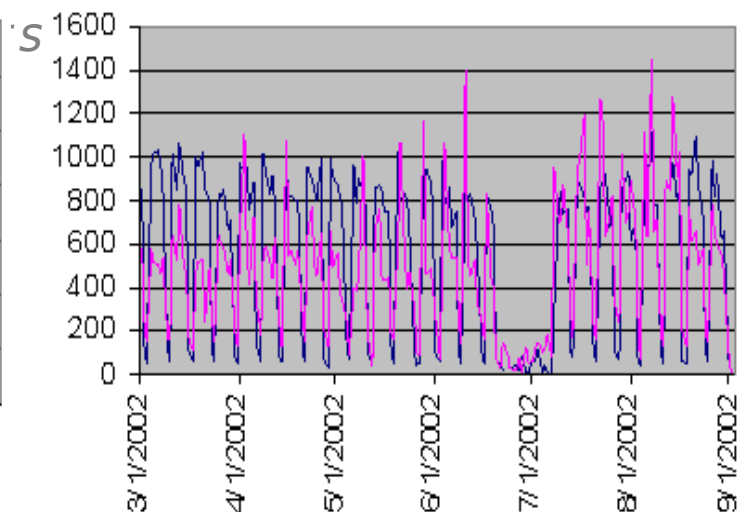
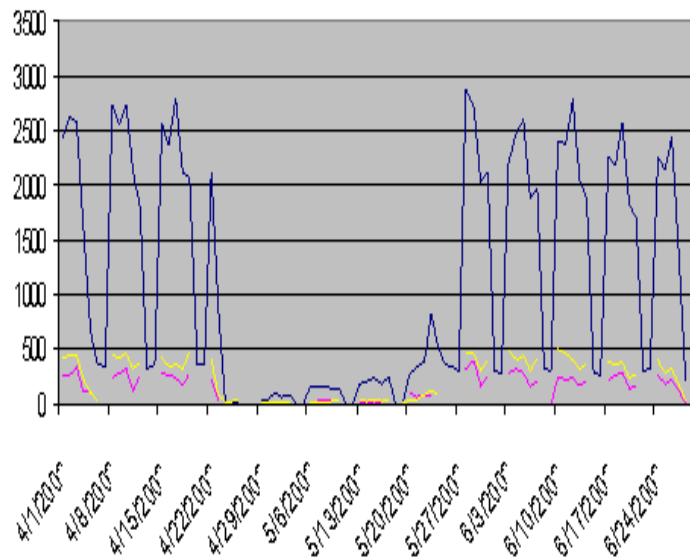
This site was last updated on Wednesday, August 30, 2006.
WARNING: This is a Department of Defense (DOD) Computer System.
POC: webmaster@eids.ha.osd.mil

Location of data quality reports in EIDS Web portal.

Data Quality Assurance

Start with Run Charts

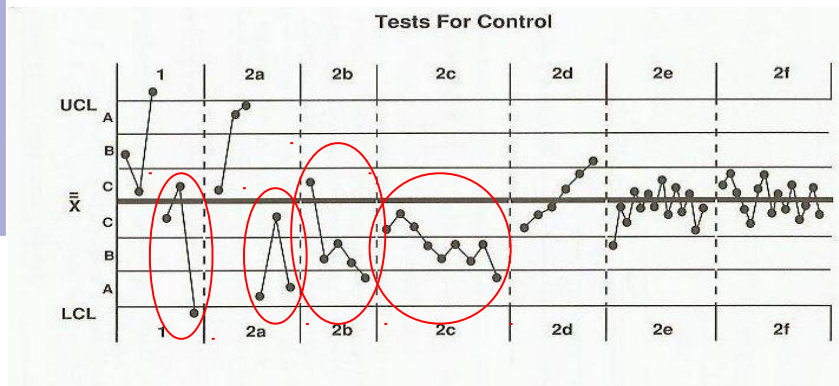
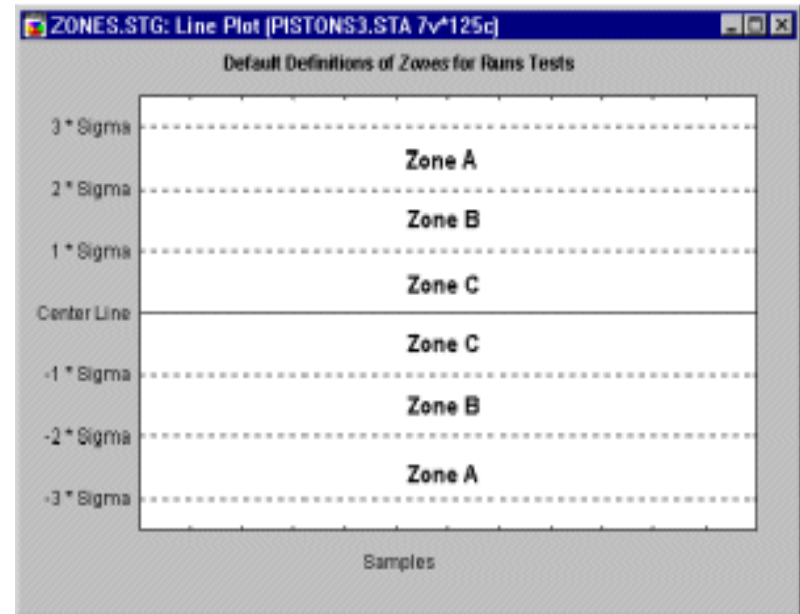
Facilities showing gaps in daily outpatient encounter data receipt. Investigation and data recovery actions required. *Data set has no correlation with other source*



Data Completeness Determination

“Completeness” as a Process Control Problem

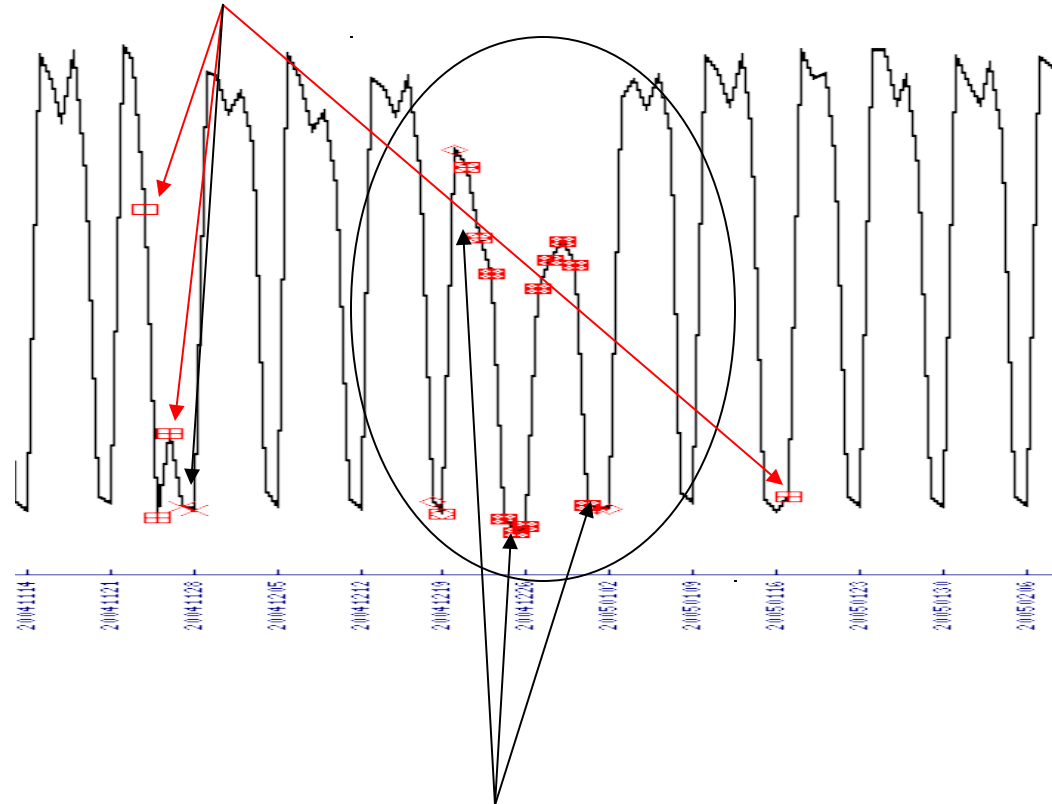
- Amenable to Statistical\Process Control
- Examine for Special Cause Variation
- Signals when a problem has occurred
- Detects variation
- Allows “Process Characterization”
- Reduces inspection need



Compare Each Day To Itself

Project previous data to today then compare this projection with newly arrived data.

Red Boxes/X's/etc indicate "Alerts" sent to DQ Team via automated email



Holiday Logic Pending

Chart: Encounters by Day

Identifying Data Completeness Problems

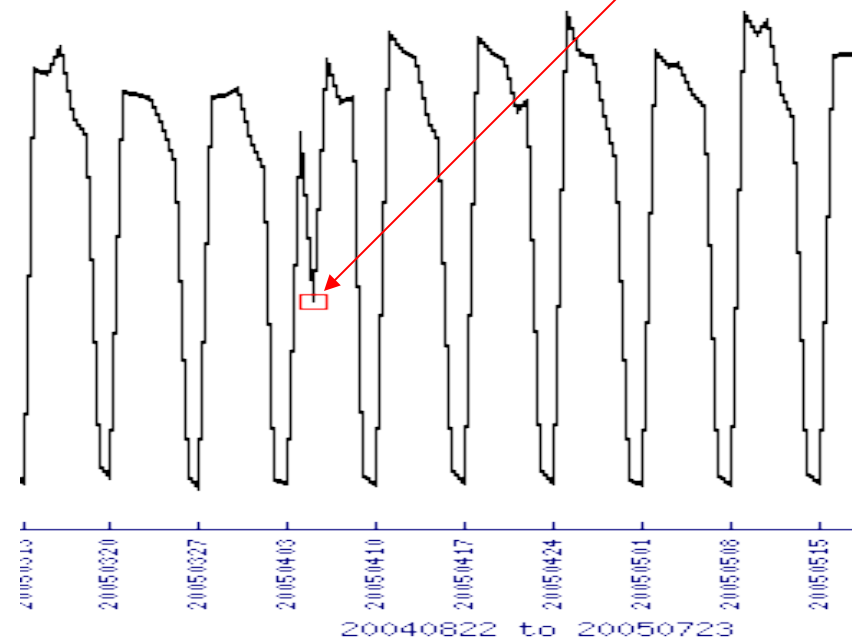


Red boxes/Xs/etc. indicate automatic e-mail “Alerts” to the EIDS data quality team.

Alerting and Notification Issue

How do you identify and present “possible” problems when:

- the “problem” is transient,
- it is one data point in a series,
- it is from one of a vast number of daily input data sources?

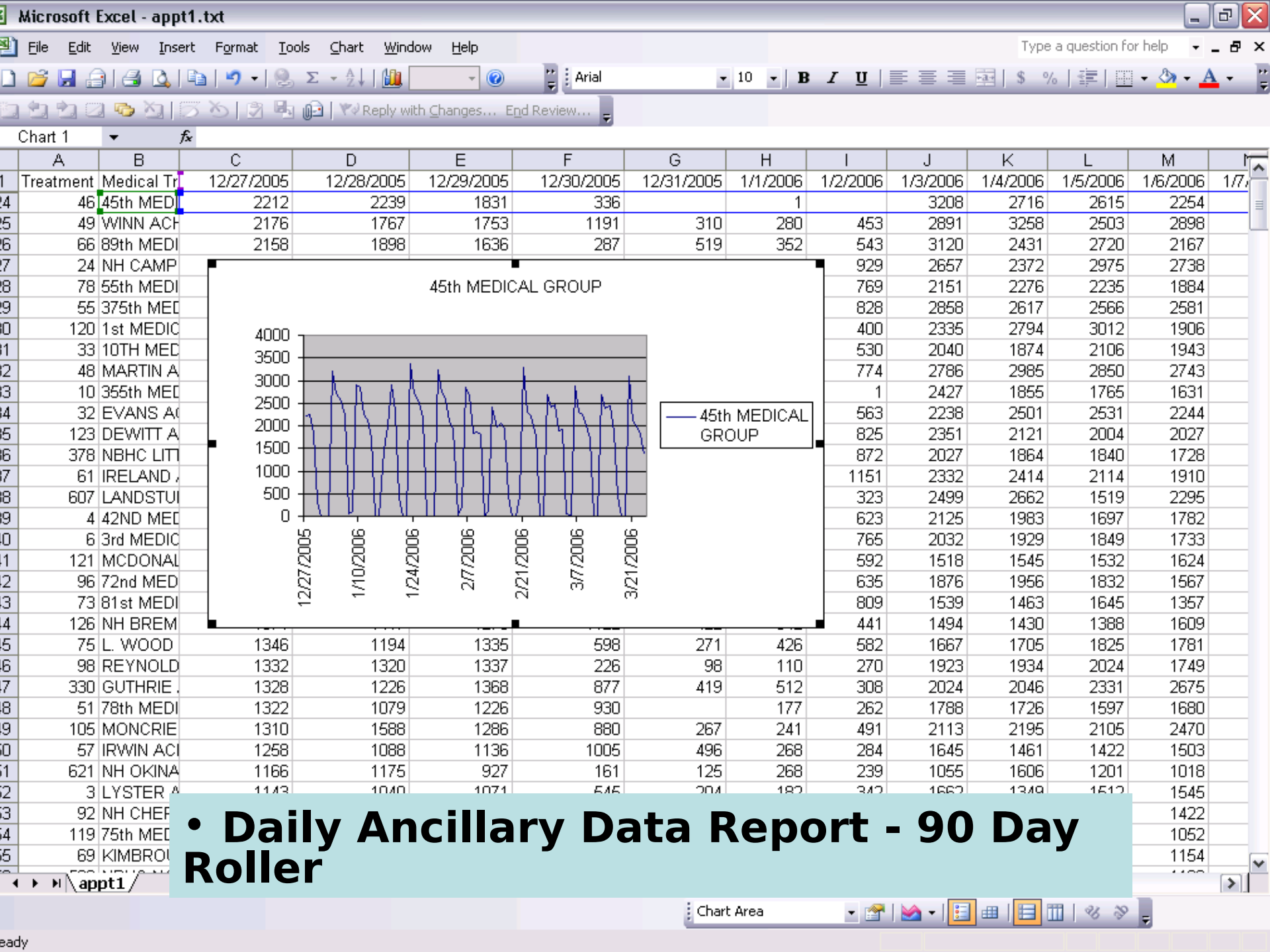


Essentially a projection of previous data forward in time to today then a comparison of this projection with the newly arrived data.

Data Tracker Report Series including:

- SADR vs Appointment Tracking (a real-time "Hutchinson" Report)
- SADR vs Appointment Delta Alerting

	B	C	F	G	K	AA	AQ	BG	BX	B
1					SADR-includes appt inferred	Post Processed Appointment Indicator	SADR-does not include appt inferred	WWR		
2	DMISID	FACILITY	MONTH		A060109	H060109	S060109	W060112		
133	0015	9th MEDICAL GROUP BEALE AFB	Oct-04		3,722	3,624	3,720	3,715		
134	0015	9th MEDICAL GROUP BEALE AFB	Nov-04		3,664	3,586	3,663	3,659		
135	0015	9th MEDICAL GROUP BEALE AFB	Dec-04		3,579	3,495	3,574	3,575		
136	0015	9th MEDICAL GROUP BEALE AFB	Jan-05		4,007	3,902	4,006	3,994		
137	0015	9th MEDICAL GROUP BEALE AFB	Feb-05		3,785	3,686	3,782	3,773		
138	0015	9th MEDICAL GROUP BEALE AFB	Mar-05		4,886	4,743	4,883	4,846		
139	0015	9th MEDICAL GROUP BEALE AFB	Apr-05		4,136	689	4,136	4,123		
140	0015	9th MEDICAL GROUP BEALE AFB	May-05		4,000	3,926	4,000	3,986		
141	0015	9th MEDICAL GROUP BEALE AFB	Jun-05		4,539	4,446	4,539	4,525		
142	0015	9th MEDICAL GROUP BEALE AFB	Jul-05		3,600	2,685	3,598	3,310		
143	0015	9th MEDICAL GROUP BEALE AFB	Aug-05		4,681	4,216	4,672	4,292		
144	0015	9th MEDICAL GROUP BEALE AFB	Sep-05		4,173	3,551	4,163	3,571		
145	015 Total				48,772	42,549	48,736	47,369		
152	0101	20th MEDICAL GROUP SHAW AFB	Oct-04		7,815	6,368	6,050	6,369		
153	0101	20th MEDICAL GROUP SHAW AFB	Nov-04		7,182	5,740	5,278	5,748		
154	0101	20th MEDICAL GROUP SHAW AFB	Dec-04		6,808	5,780	5,416	5,792		
155	0101	20th MEDICAL GROUP SHAW AFB	Jan-05		7,523	6,495	5,863	6,488		
156	0101	20th MEDICAL GROUP SHAW AFB	Feb-05		7,371	5,853	5,050	5,860		
157	0101	20th MEDICAL GROUP SHAW AFB	Mar-05		8,905	7,347	6,279	7,354		
158	0101	20th MEDICAL GROUP SHAW AFB	Apr-05		8,158	6,938	5,775	6,953		
159	0101	20th MEDICAL GROUP SHAW AFB	May-05		7,453	6,121	5,482	5,965		
160	0101	20th MEDICAL GROUP SHAW AFB	Jun-05		7,767	6,249	5,786	6,231		
161	0101	20th MEDICAL GROUP SHAW AFB	Jul-05		6,319	3,415	4,590	3,405		
162	0101	20th MEDICAL GROUP SHAW AFB	Aug-05		8,801	6,085	8,440	6,073		
163	0101	20th MEDICAL GROUP SHAW AFB	Sep-05		7,850	2	7,850	5,687		
164	101 Total				91,952	66,393	71,859	71,925		



EI/DS Tracking Reports

Select Report:

PDTs Gap

SADR Sites
SADR Size Discriminator
SADR Summary
SADR Tracking
SADR Tx DMIS ID Gap
SADR Tx DMIS ID Score
SADR Tx DMIS ID Tracking
SADR Visit Discriminator

SIDR
SIDR Gap
SIDR Army Gap
SIDR Tracking
SIDR Tx DMIS ID Gap
SIDR Tx Summary
SIDR Tx DMIS ID Tracking

HL7
HL7 Duplicate Submissions
HL7 Gap
HL7 Retransmission
HL7 Sites
HL7 Tracking

PDTs
PDTs Gap
PDTs Rx Gap
PDTs Rx Tracking
PDTs Tracking

GCPR
GCPR Gap
GCPR Sites
GCPR Tracking

WBAM0108	09/30/2002	09/30/2002 - 04:34:35	56	0108	WILLIAM BEAUMONT AMC
WOOD0075	09/29/2002	09/30/2002 - 01:47:21	21	0075	L. WOOD ACH
WOOD1511	09/29/2002	09/30/2002 - 01:47:39	163	1511	RICHARD G. WILSON CTMC
WOOD1519	09/29/2002	09/30/2002 - 01:47:53	1	1519	USA OCCUP HLTH CLIN-GOODFELLOW

Files received with errors

/sourcedata/ads/sadr/ADGEIDSSA093002.BETH6201.d020930t015312 KGADS v2.3 NED					
Content errors	2	Total Records Failed			
	2	Non-printing characters in data			
/sourcedata/ads/sadr/ADGEIDSSA100102.LAND0606.d020930t184731 KGADS v2.3 NED					
Content errors	2	Total Records Failed			
	2	Non-printing characters in data			
/sourcedata/ads/sadr/ADGEIDSSA100102.LAND0805.d020930t184849 KGADS v2.3 NED					
Content errors	1	Total Records Failed			
	1	Non-printing characters in data			
/sourcedata/ads/sadr/ADGEIDSSA093002.FOXA0001.d020930t014717 KGADS v2.3 NED					
Content errors	9	Total Records Failed			
	9	Non-printing characters in data			
/sourcedata/ads/sadr/ADGEIDSSA093002.LEAV7297.d020930t224722 KGADS v2.3 NED					
Content errors	2	Total Records Failed			
	2	Non-printing characters in data			
/sourcedata/ads/sadr/ADGEIDSSA100102.KELL0086.d020930t230420 KGADS v2.3 NED					
Missing footer	1	Total Records Failed			
	1	Non-printing characters in data			

Number of consecutive days since last SADR file received

Site ID	ADS Type	Medical Treatment Facility	Days Missing	Host
CAFB0085	KGADS v2.3 NED	27th MEDICAL GROUP	14	edwn35_sw
KELL0311	KGADS v2.3 NED	NATICK AHC	44	edwn35_sw
KELL8015	KGADS v2.3 NED	KELLER ACH TSC-PCM	73	edwn35_sw
LAND1449	KGADS v2.3 NED	249th COMBAT SUPPORT HOSPITAL (TOE)	26	edwn37_sw
LEAV1833	KGADS v2.3 NED	USADC SMITH	47	edwn35_sw
LEAV1835	KGADS v2.3 NED	USADC-DISCIPLIN BK3 #3 FT LEAVENWORTH	47	edwn35_sw
LUKE0009	KGADS v2.3 NED	56th MEDICAL GROUP	7	edwn35_sw
MAFB1748	KGADS v2.3 NED	341 DS/SGD	42	edwn35_sw
POLK1620	KGADS v2.3 NED	TMC-2-FT. POLK	80	edwn37_sw
POLK1621	KGADS v2.3 NED	TMC-3-FT. POLK	80	edwn37_sw
POLK1622	KGADS v2.3 NED	TMC-4-FT. POLK	80	edwn37_sw
RAFB0051	v2.1 NED	78th MEDICAL GROUP	4	edwn35_sw
RUCK0003	v2.1 NED	LYSTER ACH	27	edwn37_sw
TRIP0287	KGADS v2.3 NED	15th MEDICAL GROUP	5	edwn35_sw

Web site with pull down listing of Standard Data Quality and Data Completeness Reports

Data Quality Tools

Partial List of Standard Reports from the EIDS Web Portal Data Tracker Database

- **HL7 tracking:** Displays a tabular view of file submission history for each HL7 site.
- **SADR gaps:** Displays a list of sites, by ADS version, that did not report data for at least a fixed number of days
- **SADR lags:** Displays the mean and standard deviation of the reporting lag for each site, by ADS version.
- **SADR scores:** Displays a SADR transmission completeness report. For each site, by ADS version, a completion percentage is listed. assumed.
- **SADR tracking:** A tabular view of file and record submission history for each site, by ADS version. Each column corresponds to a file date.
- **SADR treatment DMIS ID gaps:** Displays a list of treatment DMIS IDs that did not report data for at least a fixed number of days.
- **SADR treatment DMIS ID scores:** A SADR transmission completeness report. For each treatment DMIS ID, a completion percentage is listed.
- **SADR treatment DMIS ID tracking:** Displays a tabular view of record submission history for each treatment DMIS ID.
- **SADR treatment DMIS ID (by visit type) tracking:** Displays a tabular view of record submission history for each treatment DMIS ID. The displayed counts indicate the number of unique SADR data records, determined by appointment prefix and appointment identifier number.
- **SADR gaps:** A list of reporting sites that did not report data for a fixed

Data Quality Tools (cont)

- **GCPR sites:** Displays a list of GCPR sites by Service, region, and DMIS ID, allowing the user to review the mapping of GCPR sites to DMIS IDs.
- **GCPR tracking:** Displays a tabular view of file submission history for each GCPR site. Each column corresponds to a date within the range specified.
- **HL7 gap:** Displays a list of sites that did not report data for at least a fixed number of days, as specified by the user query.
- **PDTS gap:** Displays a line if PDTS data has not been reported for at least a fixed number of days, as specified by the user query.
- **PDTS tracking:** Displays a tabular view of file submission history for PDTS. Each column corresponds to a file date within the range specified.
- **Ancillary Tracking:** Displays a tabular view of file and record submission history for each reporting DMIS ID. Each column corresponds to a file date within the selected range.
- **Ancillary Gap:** Displays a list of reporting DMIS IDs, that did not report data for at least a fixed number of days.
- **Ancillary treatment DMIS ID Tracking:** Displays a tabular view of record submission history for each ancillary performing DMIS ID. Each column corresponds to a service date within the range specified. The displayed counts indicate the number of unique ancillary data records, as determined by the accession number for laboratory, exam number for radiology, and prescription number for pharmacy.
- **Ancillary treatment DMIS ID Gap:** Displays a list of performing DMIS IDs that did not report data for at least a fixed number of days, as specified by days, up to and including the ending service date, as specified.
- **Appointment treatment DMIS ID Tracking:** Displays a tabular view of record submission history for each appointment treatment DMIS ID. Each column corresponds to an appointment date within the inclusive range specified by the

Data Quality Tools



Allow EIDS to:

- Catalog data files
- Monitor data completeness
- Provide metrics to assess data quality/completeness of data received
- Design, develop and maintain data quality software

The Key To Data Quality Success

Two horizontal lines with arrows pointing in opposite directions, one above the other, spanning the width of the slide.

- Partnering with our users to maximize information sharing
- Questions?

Contact EIDS

EI/DS - Microsoft Internet Explorer provided by HA/TMA

File Edit View Favorites Tools Help Links »

EXECUTIVE INFORMATION AND DECISION SUPPORT 07 January, 2005

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Product Access

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EI/DS Captured Data

- Customer Satisfaction Survey Data
- DEERS Point-in-Time Extract (PITE) - Eligible Beneficiaries
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- Standard Inpatient Data Record (SIDR)
- TRICARE Encounter Data (TED) Claims
- TRICARE Enrollment File
- Worldwide Workload Report

EI/DS: Did you know...?

The MCFAS Beneficiary Population Forecasting Model is a powerful MHS application for analyzing and forecasting beneficiary demographics. Variations in age, gender, locality, and beneficiary entitlement status can be tracked and projected over an 8-year planning horizon.

Dates to Remember

- TRICARE Conference - **24 Jan 2005**
- HIMSS Conference - **13 Feb 2005**

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Web Portal

- <https://eids.ha.osd.mil>
- account information
- product information

MHS Help Desk

phone: 800-600-9332
e-mail: eids@mhshelpdesk.com

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Welcome to EI/DS